Natural Resources Council of Maine

STATE OF MAINE
LAND USE REGULATION COMMISSION

| | | |
|---|---|---|
| Application for Development of | ) | PRE-FILED TESTIMONY |
| TransCanada Maine Wind Development, Inc. | ) | OF DYLAN VOORHEES |
| Kibby Mountain Wind Farm | ) | NATURAL RESOURCES |
| Rezoning Application ZP 709 | ) | COUNCIL OF MAINE |

## I. Summary

My name is Dylan Voorhees. I am the Clean Energy Director for the Natural Resources Council of Maine (NRCM). NRCM is a private, non-profit, membership organization established in 1959 to advocate for the protection and conservation of Maine's natural resources. NRCM has a strong interest in the development of clean forms of electricity generation that will help reduce the environmental and public health harm caused by existing forms of power production. We share the view articulated in the Maine Land Use Regulation Commission's (the "Commission") Comprehensive Land Use Plan that "windpower offers an attractive alternative to the burning of fossil fuels."[1] NRCM also has a strong interest in land conservation for areas with unique natural resource, recreation, and remote resource values. Accordingly, we recognize that the Commission has an important responsibility in considering how to balance impacts and benefits when it comes to wind power projects in its jurisdiction.

NRCM has carefully examined the application, visited the site, and strongly concludes that this project conforms to the Commission's evaluation criteria and policies, Maine's energy policies,

[1] Comprehensive Land Use Plan (1997), Chapter 3, Natural and Cultural Resources, p. 40

and the public interest. The Kibby Wind Farm would generate a substantial amount of new renewable power in Maine at a time when we need to reduce our dependence on fossil fuels. We believe that the environmental impacts would be small in comparison with the benefits. For these reasons, and as described in this testimony, we urge the Commission to approve the rezoning application and support construction of the Kibby Mountain Wind Farm.

## II. Background: Comparison to permitted Kenetech Wind Farm

The Kibby Wind Farm will be located in the same area as the proposed Kenetech wind power project, which received a permit from LURC in August 1995 but was not constructed after the company declared bankruptcy. Importantly, the approved Kenetech project would have had substantially greater site impacts than the current proposal. The Kenetech project would have sprawled across more than 30 miles of ridgeline, involving 639 turbines in 47 turbine strings on nearly ten different mountains. (Exhibit A). The Kibby Wind Farm, in contrast, will involve much less ridgeline development, far fewer turbines, in a smaller number of turbine strings, on only two of the mountains that were slated for development previously. Unlike the Kenetech project, the Kibby Wind Farm would *not* be located on the summit of Kibby mountain, or on Tumbledown Mountain, Caribou Mountain, Boundary Ridge or Three Slide Mountain – which are some of the most significant mountains in the project area.

Additionally, the Kibby project will have substantially less impact within the P-MA zone. While the Kenetech project envisioned 55 miles of new roads built above 2700', the Kibby project would require less than 14 miles of new roads above 2700'. The Kenetech project was endorsed

(as part of a negotiated agreement) by NRCM, Maine Audubon, Conservation Law Foundation, and the Appalachian Mountain Club. These same organizations endorse the Kibby Wind Farm.

In its decision document approving the Kenetech project, the Commission concluded that "the proposal and related land uses would not be located in environmentally sensitive areas where there are overriding, conflicting, environmental, and public values requiring protection."[2] NRCM agrees and firmly believes that the facts of the Kibby Wind Farm support a similar determination by the Commission.

It is important to note that the evaluation criteria utilized by the Commission in reaching its decision to endorse the Kenetech Project have remained essentially unchanged since 1995. If anything, state policy has become more specifically supportive of wind power since then, giving the Commission even stronger grounds for its determination for "demonstration of need."

Since 1995, scientists and policymakers have gained a far greater understanding of the threat from global warming and the need for urgent action, yet our dependence on fossil fuels has increased. Greenhouse gas emissions from coal-fired power plants alone have increased in the northeast by 5% since 1990 and total greenhouse gas emissions in the region have increased by 8%[3] (despite a commitment by the New England Governors to return to 1990 levels by 2010.) Increased use of coal for power is not only devastating the Appalachian mountains through

[2] Land Use Regulation Commission, "Findings of Fact and Decision, ZP 536". Kenetech Windpower Inc. August 17, 1995, p. 28.
[3] U.S. PIRG, "The Carbon Boom: State and National Trends in Carbon Dioxide Emissions Since 1990", April 2007. p. 19.

mining, but poses a grave threat to the mountains of Maine, through climate change, habitat degradation and toxic pollution. (Exhibit B).

## III. Best reasonably available site

NRCM believes that the proposed project location meets LURC criteria for the best reasonably available site. This project area was identified as a good location for a wind power project (Kenetech) nearly 15 years ago. It has a strong wind resource, a good system of existing logging roads, and is in an area where the primary current use is industrial forestry. As part of the approval for rezoning in 1995, the Commission concluded that the project area fully met the best reasonably available site requirement, and we believe that it satisfies that same condition today.[4]

In order to balance utilization and protection of resources, the CLUP directs the Commission to "identify and protect high mountain resources with particularly high natural resource values or sensitivity which are not appropriate for most development" (emphasis added).[5] We believe Kibby Range and the part of Kibby Mountain to be rezoned for this project are *not* mountains with "particularly high natural resource values or sensitivity" that require protection. The large majority of the turbines will be below 3000 feet, in areas significantly impacted by forestry operations. The project area does not have recreational or natural resource values of regional or statewide significance that would make it a high priority for land conservation.

[4] Land Use Regulation Commission, "Findings of Fact and Decision, ZP 536". Kenetech Windpower Inc. August 17, 1995, p. 27.
[5] CLUP, p. 138.

## IV. No undue adverse impacts on existing uses and values

Recreational, wilderness and visual impacts

One of the important tasks for the Commission in evaluating a wind power project is identifying potential conflict with recreational, wilderness and scenic resources that are a principal value of the jurisdiction. Some visual impacts are inevitable for a wind power project. In this case, the visual impacts would be limited considering the large energy output of the project, and do not constitute an undue adverse impact, as described below. Recreational usage levels in and around the project area are relatively low, and the area is not extensively utilized for primitive recreational uses that seek pristine, remote or highly scenic locations (e.g. hiking, camping, canoeing). Usage and attitudes of users were extensively surveyed by the applicant. Existing recreational users ranked likely impacts of the project as positive or "very low" or "low", even among users familiar with the wind project—perhaps reflecting the fact that hunting and snowmobiling/ ATV are the most common uses and will benefit from improved access to the project area.

The project area is not a remote wilderness area. At its closest point, it is about one mile from a highway (Route 27). Large portions of Kibby Township have been actively cut over for timber, leaving the landscape largely fragmented. In part because of these factors, the area is not a known priority for land conservation organizations.

The project would be visible from some public spaces and areas used for recreation. This includes Jim Pond, where some turbines would be visible from 5 miles, a distance that lies somewhere between "middleground" and "background". We believe this level of visual impact on a small number of ponds is acceptable. The project will be visible from some sensitive view

spots of state or regional significance, but only at distances greater than 10 miles, where the turbines appear small and fit most easily within the surrounding landscape. This includes Flagstaff Lake (10-20 miles away) and a short stretch on the Appalachian Trail (15 miles away). If visibility from the AT at this distance prevented the Commission from granting this permit, it would effectively rule out a vast swath of the state, and some of its windiest resources, from wind power development, as approximately 20-25% of the state is within 15 miles of the AT.

The only significant visual impact would be on the view from the summit of Kibby mountain. From this location, the project will be in the foreground (less than one mile), although the project would be below the viewer and not seen against the horizon. This does not rise to an undue adverse impact when considering both the relatively low use of this trail, and when compared to the impact from the Kenetech project, which would have put turbines directly *on* the summit (and on a dozen other ridges surrounding the Kibby summit)

Impacts on sensitive habitat and species

A number of rare wildlife species occur in the project area, including Canada lynx, the Northern bog lemming and four bird species. Surveys for lynx by the applicant suggest that the project area is not a significant or frequently used location for this species. The applicant has made significant changes to the design of the project to avoid impacts to bog lemming habitat, notably the realignment of the southern turbine string and the movement of at least two turbine locations.

Bicknell's Thrush, a rare migratory songbird has been identified in the project area. While NRCM did not conduct an on-site survey for Bicknell's Thrush, the applicant conducted surveys

for the bird using the same protocols (e.g. from Vermont Institute for Natural Sciences, VINS) that a bird biologist working for NRCM used in a similar wind farm location. In the summer of 2007, NRCM hired biologist and bird conservation expert Dr. Jeffrey Wells to conduct field surveys associated with the Black Nubble Wind Farm, and to examine all known threats to Bicknell's Thrush, including but not limited to wind farm proposals in the western mountains. Dr. Well's findings include:

- "The greatest immediate threat to the species' survival comes from loss of wintering habitat. The estimated losses of forests in its wintering grounds are 98.5% in Haiti, 90% in the Dominican Republic, 80-85% in Cuba, and 75% in Jamaica. … In contrast, much of the species' breeding range in North America is within existing protected areas (especially in New York, Vermont, and New Hampshire) or is within areas managed for forestry (Maine, Quebec, New Brunswick, Nova Scotia)."
- "The greatest immediate threat to the species in its breeding grounds is likely from the bioaccumulation of toxics and the degradation of the birds' upper elevation habitat – both a result of pollution from coal-fired energy plants. … Research published in 2005 found that Bicknell's Thrush had the highest levels of mercury in their blood of any of four species of high-elevation songbird species that were tested."
- "The most serious, long-term threat to Bicknell's Thrush comes from the projected impact of global warming as a result of the unchecked production of carbon into the atmosphere. … In a recent modeling analysis for the Northeast Climate Impact Assessment, Rodenhouse et al. (2007) showed that even under moderate levels of carbon emissions, changes in balsam fir habitat would result in the loss of 90% of Bicknell's

> Thrush habitat in the U.S. Such an effect would lead to a major decline, possible extirpation of the species from the U.S. and highly increase the risk of global extinction for Bicknell's Thrush."

Dr. Wells concluded that "Based on this analysis, and viewed within the full range of threats to Bicknell's Thrush, I conclude that the proposed Black Nubble project would not pose a significant risk to Bicknell's Thrush." (See Attachment A for the complete testimony.) Given that numbers of Bicknell's Thrush were similar between the projects (seven at Kibby, three on Black Nubble), we believe these findings are highly relevant and reinforce the conclusion that there will be no undue adverse impacts on the species.

A few other sensitive avian species were detected in the project area. NRCM has concluded the project does not pose an undue risk to these species, nor to migrants in general. The project will not cause any impact on the fir-heartleaved birch subalpine forest community rated as rare (S3) by Maine's Natural Areas Program (MNAP), since the turbines will not be within the direct boundary of this community. Three plant species identified as imperiled (S2) by MNAP have been identified within the project area and the transmission line corridor. NRCM has examined the potential impacts and agrees with the MNAP assessment that the project will have minimal impact on these species.

As observed by MDIFW and others, the applicant's commitment to multi-year post-construction monitoring is one of the most important elements of the application from an avian perspective. Detailed analysis of pre- and post-construction information will help the Commission and other

parties improve their ability to evaluate proposals from wind power in Maine. See the testimony of Maine Audubon for more detailed assessment.

Impacts on P-MA district

The project requires the clearing of about 265 acres in an existing P-MA zone, mostly for construction of 13.8 miles of new roads above 2700'. There are several factors which lead NRCM to conclude that this will not constitute an undue adverse impact. First, the project area is relatively low in elevation and does not exhibit high environmental resource values. All but 10 of the turbines would be below 3000 feet in elevation.

Second, the extent of clearing needed for the project would be small compared with the benefits of the project, and also small when compared with clearing for timber allowed by the Commission in nearby P-MA zones. In four townships adjacent to Kibby Township, permits were granted by the Commission for cutting in approximately 860 acres of P-MA zone. This includes 214 acres in Skinner Township (in which a portion of the project area lies), granted as recently as 2006. An additional 1,940 acres of cutting was permitted in three nearby townships (Exhibit C). If these 2,800 acres of P-MA near Kibby (and more than 21,000 acres across LURC jurisdiction) were allowed, then it seems reasonable to conclude that this project's impacts will not be undue.

The conservation agreement between TransCanada and NRCM and consolidated intervenors adds considerable environmental value to this project. That agreement places about 1300 acres of land in the project vicinity off-limits from wind power development. Those ridges, which

were previously permitted for development by Kenetech, contain higher natural resource values than the project area itself. In addition, TransCanada has agreed to help fund conservation of Sunday River Whitecap in the Mahoosuc region, a mountain of statewide significance for ecological, recreational and scenic values.

In consideration of the scale of likely impacts, and the steps taken by the applicant to assess, minimize and avoid adverse impacts, NRCM concludes that this project does not pose any undue adverse impacts and that the project provides a substantially equivalent level of protection to mountain resources in the P-MA zone.

## V. Consistency with "demonstrated need" criteria

NRCM believes that the Kibby Wind Farm project clearly and unequivocally meets the Commission's "demonstrated need" criteria. We do not believe that there should be any significant debate about the fundamental question of whether Maine has a demonstrated need to reduce our dependence on fossil fuels through increased generation of renewable energy. The need for renewable power was a significant factor in the Commission's decision to support the original Kenetech project. As stated then, "the proposed wind energy station would satisfy a demonstrated need in Maine for new non-polluting energy sources."[6] The Commission further explained:

> "The Commission is persuaded that the proposal conforms to … the Commission's Comprehensive Land Use Plan relating to energy resources. Specifically, the

[6] Land Use Regulatory Commission, Finding of Facts and Decision, ZP 536. Kenetech Windpower Inc. August 17, 1995, p.26.

> Commission concludes that the proposed wind energy station represents a significant, publicly beneficial opportunity for diversification, and use of indigenous renewable resources to increase the state's energy self-sufficiency."[7]

Since 1995, the state's energy policies are even more supportive of renewable energy development.[8] Maine law, enacted in 2007, requires a 10% increase in renewable energy by 2017, a goal which likely cannot be achieved except through wind power.[9]

LURC includes a number of specific factors that can be considered when evaluating the "demonstrated need" criteria.[10] We believe that "demonstrated need" is particularly well satisfied through the following factors:

1) **Public Benefit**: The Maine Wind Energy Act finds that it is "in the public interest" to develop wind power.[11] The Kibby Wind Farm is expected to generate 357,000 MWh of electricity annually, which is equivalent to the electricity utilized by an estimated 54,000 Maine homes. These numbers are important, but can easily become too abstract, so a comparison is in order. If permitted, the Kibby project would be Maine's third largest renewable power plant (in terms of annual generation), behind only the Wyman and Penobscot Mills hydropower dams. (Exhibit D). In addition to meeting state policy and statutory requirements, this level of zero-emission clean power generation would be a significant public benefit for human and environmental

[7] Ibid. p. 28.
[8] Since 1995, the Maine Legislature has passed major legislation supporting wind power, for example: LD 2041 (Energy Security & Independence), LD 1851 (Regional Greenhouse Gas Initiative/RGGI), LD 1920 (Renewable Portfolio Standard), LD 845 (Climate Change Leadership).
[9] 35-A MRSA §3210
[10] Clarifying the Rezoning Criterion of "Demonstrated Need," Maine Land Use Regulation Commission, April 1, 2004.
[11] 35-A MRSA §3401-3404.

health, as it would displace fossil fuel generation and reduce air pollution (including carbon emissions).

2) **Need for Goods and Services & Projected Customer Base**: Maine and consumers who are part of the integrated electrical grid (NEPOOL) need more clean, renewable power. Currently, approximately 60% of the electricity generated in New England comes from fossil fuels. Renewable Portfolio Standard (RPS) policies in Maine, Massachusetts, Connecticut, Rhode Island and New Hampshire all are aimed at reducing our dependence on fossil fuels and spurring renewable energy generation. The regional demand for renewable energy credits currently exceeds the supply, and is expected to for many years. This means that the power from Kibby will have a strong customer base. A growing number of Maine businesses and residents are interested in purchasing renewable energy that has been generated in Maine.

3) **Economic Benefit**: As outlined in more detail by other parties, the project will bring direct economic benefits to the community and the region. This includes significant property tax revenue on an annual basis, project investments in Maine totaling many millions of dollars, and direct employment during and after construction (as well as "multiplier effect" spending on food and lodging).

4) **Dependence on Site-Specific Natural Resources**: The fundamental reality of wind power projects is that they must be developed in locations where there is a strong wind resource. Although other areas in Maine also have strong winds, it is a highly complex task to find the right combination of wind speed, proximity to transmission lines, and site suitability. Kibby

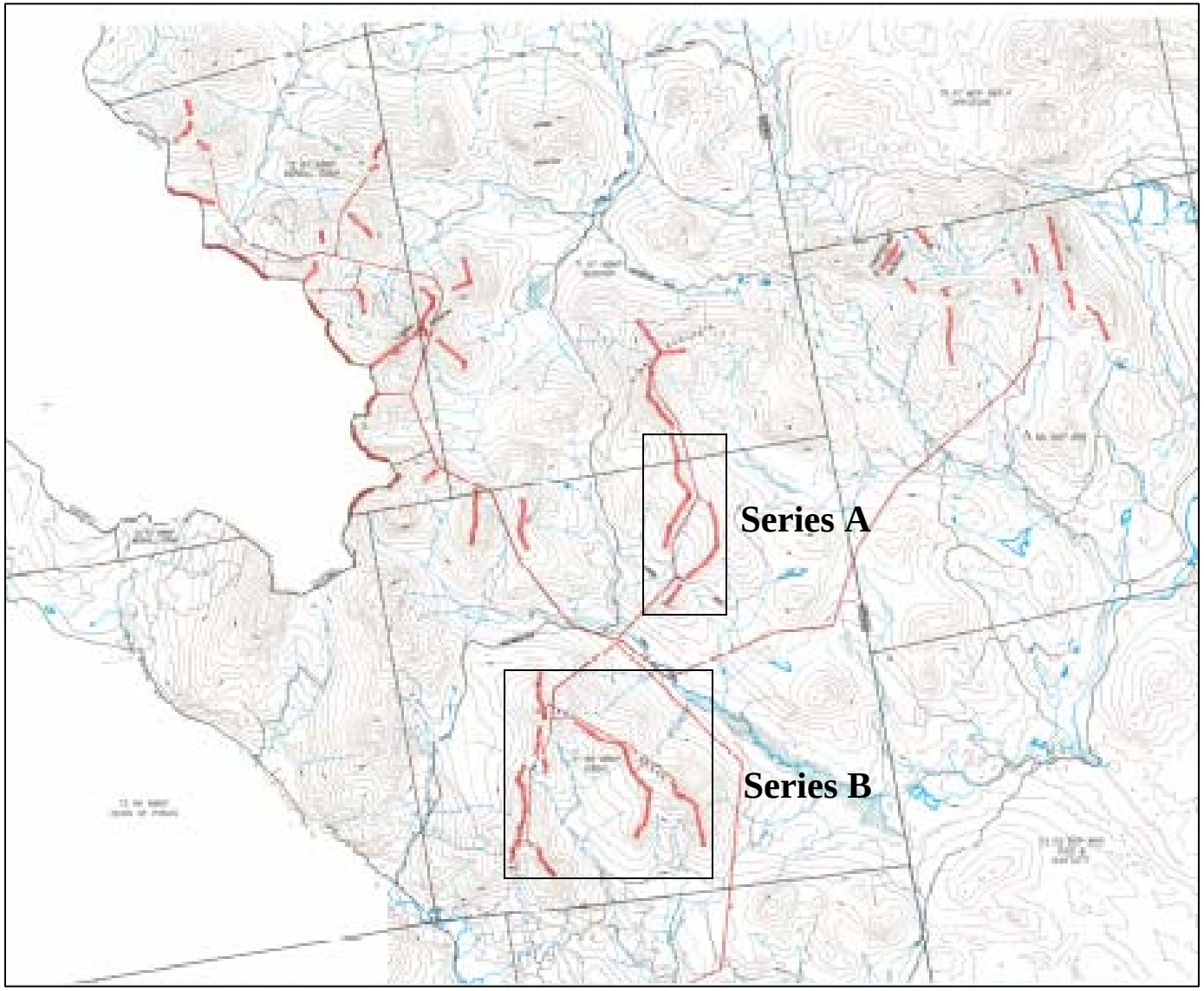
Mountain and Kibby Range have a strong wind resource, identified nearly 15 years ago. The site provides the site-specific resource that can result in an economically viable project.

## VI. Conclusion

In conclusion, Maine and the Commission face a clear choice about our energy future. One choice is to pursue the status quo—continued reliance on fossil-fuels for our electricity and acceptance of the enormous negative impacts on the environment and public health. The other choice is to pursue a comprehensive strategy to increase our use of clean energy. Because wind power is an essential component of a clean energy strategy, and that resource lies largely in LURC jurisdiction, it falls to the Commission to help Maine make that choice when evaluating this individual project.

NRCM has carefully examined the Kibby Wind Farm application and has reached the strong conclusion that this project is consistent with LURC criteria and policies, and would be in the public interest if built. We urge the Commission to approve the application.

## Exhibit A: Turbine Locations for Kenetech vs. Kibby Wind Farm




Red lines identify ridgelines that were part of the 1995 Kenetech wind power project. The Kibby Wind Farm will only utilize the lower part of Series A and the Series B ridgelines.

**EXHIBIT A: Comparison of Kenetech and Kibby Wind Farms**

| Project Feature | Former Kenetech Project | Kibby Wind Farm |
|---|---|---|
| **Number of turbines** | 639 | 44 |
| **Miles of ridgeline utilized** | 30.5 | 13.1 |
| **Number turbine strings** | 47 | 11 |
| **Total miles of roads** | 132.2 | 36.4 |
| **Miles of new road in P-MA** | 40 | 13.8 |
| **Miles of new road all elevations** | 76.7 | 17.4 |
| **Miles of existing road** | 55.7 | 19.0 |
| **Names of ridgelines (#s of turbine strings/ridgeline)** | Kibby Mountain (5)<br>Kibby Range (7)<br>Tumbledown Mountain (5)<br>Caribou Mountain (4)<br>Merrill Mountain (3)<br>Three Slide Mountain (5)<br>Boundary Ridge (8)<br>Other Unnamed ridges (10) | Kibby Mountain (4)<br>Kibby Range (7) |

Sources: Kenetech permit approval document; Kibby Wind Farm Application

**Exhibit B: Impacts of fossil fuel use on mountains**

All forms of energy generation have impacts, and NRCM fully recognizes that this includes the Kibby Wind Farm. The project would involve road construction on mountain slopes, which would cause erosion and some habitat loss. But the impacts of this project should be considered within the larger context of environmental harms caused by our existing dependence on coal, oil, and natural gas. Maine's mountains currently are experiencing impacts from fossil fuel use, in the form of habitat degradation caused by acid rain, toxic pollution, and visual impacts due to ozone haze. Over the long-term, Maine's mountains are expected to experience widespread habitat loss and species impacts due to climate change.[12]

Maine's electricity consumers get more than 12% of their electricity from coal,[13] including from coal that has been mined in West Virginia and is burned at the Merrimack Plant in Bow, New Hampshire.[14] It is thus relevant to consider impacts associated with coal use. More than 470 mountains have been destroyed in West Virginia, Virginia, Kentucky, and Tennessee through mountain-top removal of coal.[15] According to the U.S. EPA, mountaintop coal removal has caused the destruction of more than 800 square miles of mountains and 1,000 miles of streams, with widespread impacts on wildlife, fish, and terrestrial habitat.[16] At its current rate, mountaintop removal of coal will cause a projected loss of more than 1.4 million acres in Appalachia by 2020.

---

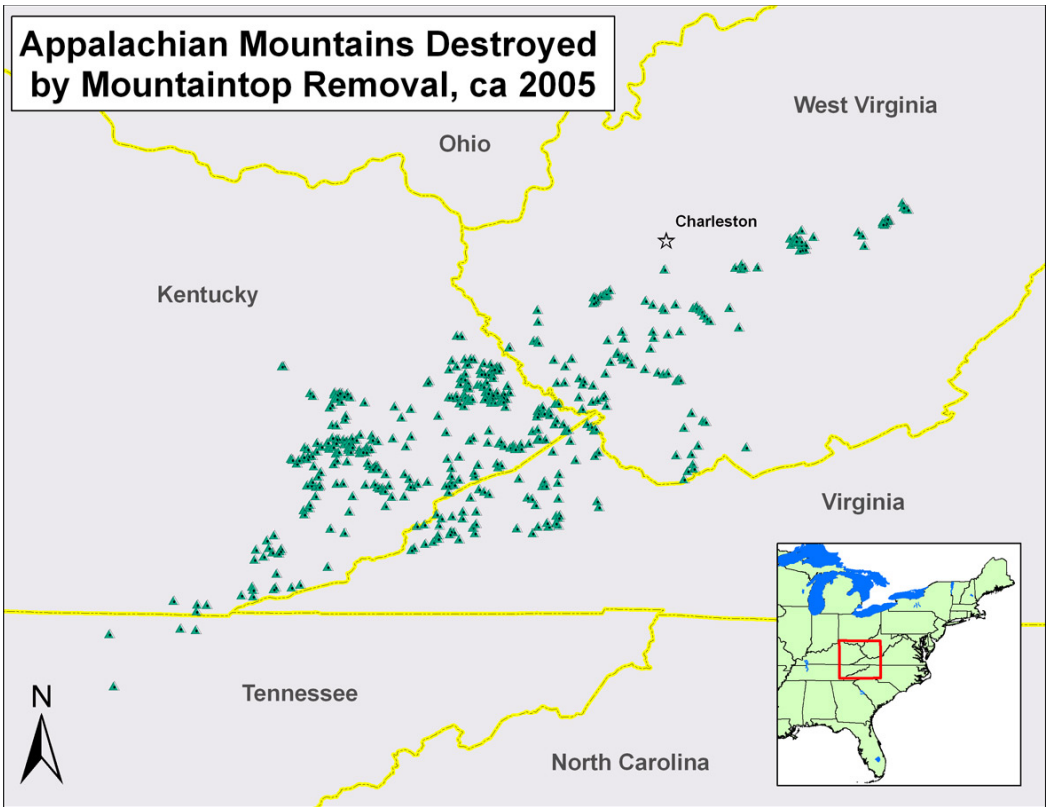
[12] Northeast Climate Impacts Assessment (NECIA), Confronting Climate Change in the U.S. Northeast, July 2007, Union of Concerned Scientists.

[13] Maine PUC, Mitchell Tannenbaum, Presentation to Wind Power Task Force, http://www.maine.gov/doc/mfs/windpower/meeting_summaries/080307_summary_files/Wind%20Power%20in%20Maine-Mitch.ppt

[14] Platt's CoalDat Database; Clean Air Task Force. New England power plants burned 9,179,280 short tons of coal in 2006, mined in West Virginia, Pennsylvania, Nevada, Ohio, Colorado, Colombia, Venezuela, and Indonesia. The Brayton Point power plant in Massachusetts burns an average of 9,000 tons of coal/day.

[15] See www.ilovemountains.org/memorial/ to see a memorial identifying the 470 mountains destroyed by mountaintop removal, with stories, photos, maps, videos and interviews of local residents to tell the stories of those mountains and nearby communities.

[16] http://www.epa.gov/region3/mtntop/index.htm




**470 Mountains have been destroyed in Appalachia from mountaintop removal.**
(http://www.ilovemountains.org/resources)

**A mountaintop removal operation near Kayford Mountain, W.Va**
Photo by Vivian Stockman, Oct. 19, 2003 (http://www.ohvec.org/galleries/mountaintop_removal/007/42.html )

**EXHIBIT C -- FORESTRY OPERATIONS PERMITS**

Exhibit C: Forestry Operations Permits

**APPROVED FORESTRY OPERATIONS PERMITS IN P-MA SUBDISTRICTS (ABOVE 2700 FEET ELEVATION)**

Data gathered from files in LURC Headquarters July 2007

NA = acreage data not included in final permit

Sorted by Township; 206 total approved permits and amendments; approx. 129 unique harvest operations

**Total acreage harvested above 2700 feet based on available data = 21,373 acres**

| | TOWNSHIP | ACREAGE | ACTION # | COMPANY/APPLICANT | ZONE |
|---|---|---|---|---|---|
| SIGNED | Adamstown Twp. | NA | 401 | Brown Co | p-ma |
| 12/26/1979 | Adamstown Twp. | 250 | 837 | Bayroot LLC | p-ma |
| 1/18/2007 | Adamstown Twp. | see above | 837 | Wagner Forest Management Llc | p-ma |
| 1/18/2007 | Alder Stream Twp. | NA | 011 | Dead River Co | p-ma |
| 9/5/1979 | Alder Stream Twp. | 108 | 531 | Dead River Co | p-ma |
| 12/24/1981 | Alder Stream Twp. | 45 | 590 | Penobscot Indian Nation | p-ma |
| 11/2/1983 | Alder Stream Twp. | 68 | 686 | Penobscot Indian Nation | p-ma |
| 3/21/1991 | Andover North Surplus Twp. | 9 | 783 | Bradford | p-ma |
| 1/27/2000 | Andover North Surplus Twp. | 68 | 824 | Sustainable Forest Technologies | p-ma |
| 11/29/2005 | Appleton Twp. | 60 | 817 | Plum Creek Timber Co | p-ma |
| 9/3/2004 | Bald Mountain Twp. | not exceed 61 | 071 | Scott Paper Co | p-ma |
| 9/2/1975 | Bald Mountain Twp. | see above | 071 | Scott Paper Co | p-ma |
| 3/3/1976 | Bald Mountain Twp. | NA | 071 | Scott Paper Co | p-ma |
| 2/6/1978 | Bald Mountain Twp. | see above | 195 | Beaudry | p-ma |
| 10/13/1976 | Bald Mountain Twp. | 195 | 259 | Scott Paper Co | p-ma |
| 6/18/1977 | Bald Mountain Twp. | NA | 402 | Scott Paper Co | p-ma |
| 12/11/1979 | Beaver Cove | 36 | 048 | J M Huber Corp | p-ma |
| 7/25/1975 | Beaver Cove | 12 | 646 | Florence | p-ma |
| 6/20/1985 | Beaver Cove | 21 | 654 | Russo | p-ma |
| 11/21/1985 | Beaver Cove | 9 | 704 | Merrick | p-ma |
| 6/20/1990 | Beaver Cove | NA | 705 | Patenaude | p-ma |
| 8/15/1990 | Beaver Cove | 11 | 717 | Ethier | p-ma |
| 9/27/1991 | Beaver Cove | 9 | 820 | West | p-ma |
| 3/2/2005 | Beaver Cove | 866 | 842 | Bureau of Parks And Lands | p-ma |
| 2/5/2007 | Big Moose Twp. | NA | 213 | James W Sewall Co | p-ma |
| 10/28/1976 | Bowdoin College Grant East | NA | 150 | Diamond International Corp | p-ma |
| 3/25/1976 | Chain of Ponds Twp. | NA | 015 | Brown Co | p-ma |
| 4/19/1974 | Chain of Ponds Twp. | NA | 392 | Brown Co | p-ma |
| 12/26/1979 | Davis Twp. | 200 | 005 | Brown Co | p-ma |
| 12/21/1973 | Davis Twp. | see above | 005 | Seven Islands Land Co | p-ma |
| 12/21/1973 | Davis Twp. | 200 | 084 | Brown Co | p-ma |
| 9/19/1975 | Davis Twp. | see above | 084 | Brown Co | p-ma |
| 1/21/1976 | East Middlesex Canal Grant | NA | 368 | Great Northern Paper Co | p-ma |
| 7/23/1979 | Grafton Twp. | 45 | 563 | Boise Cascade Paper Grp | p-ma |
| 11/16/1982 | Grafton Twp. | 392 | 563 | Bayroot LLC | p-ma |
| 10/13/2006 | Grafton Twp. | see above | 563 | Bayroot LLC | p-ma |
| 10/13/2006 | Grafton Twp. | see above | 563 | Bayroot LLC | p-ma |
| 10/13/2006 | Grafton Twp. | 75 | 574 | Boise Cascade Paper Grp | p-ma |
| 10/11/1983 | Grafton Twp. | 126 | 681 | Boise Cascade Paper Grp | p-ma |
| 9/22/1987 | Grafton Twp. | 315 | 829 | Bayroot LLC | p-ma |
| 7/31/2006 | Haynestown Twp. | NA | 003 | Raymidga Co | p-ma |
| 12/17/1973 | Lang Twp. | NA | 10 | Spaulding | p-ma |
| 4/19/1974 | Lang Twp. | NA | 299 | Nile | p-ma |
| 1/23/1978 | Lang Twp. | 1480 | 507 | Boise Cascade Paper Grp | p-ma |
| 6/11/1981 | Lang Twp. | 388 | 663 | Boise Cascade Paper Grp | p-ma |
| 7/18/1986 | Lang Twp. | 491 | 755 | Boise Cascade Paper Grp | p-ma |
| 5/8/1996 | Lily Bay Twp. | NA | 389 | Morrill | p-ma |
| 12/26/1979 | Lily Bay Twp. | NA | 389 | Morrill | p-ma |
| 12/26/1979 | Lily Bay Twp. | 0.6 | 832 | Pote | p-ma |

**EXHIBIT C -- FORESTRY OPERATIONS PERMITS**

| | | | | | |
|---|---|---|---|---|---|
| 9/12/2006 | Lincoln Plt. | 10 | 760 | Boise Cascade Corp | p-ma |
| 6/25/1996 | Lincoln Plt. | 12 | 781 | Bryant | p-ma |
| 2/11/2000 | Lincoln Plt. | see above | 781 | Bryant | p-ma |
| 2/11/2000 | Lynchtown Twp. | 80 | 023 | Brown Co | p-ma |
| 1/24/1975 | Lynchtown Twp. | not exceed 200 | 169 | Brown Co | p-ma |
| 6/18/1976 | Lynchtown Twp. | 350 | 561 | Boise Cascade Paper Grp | p-ma |
| 10/14/1982 | Lynchtown Twp. | 32 | 619 | Boise Cascade Paper Grp | p-ma |
| 12/10/1984 | Madrid Twp. | NA | 796 | Dillon | p-ma |
| 1/31/2002 | Merrill Strip Twp. | 425 | 474 | Boise Cascade Paper Grp | p-ma |
| 12/16/1980 | Merrill Strip Twp. | NA | 522 | Boise Cascade Paper Grp | p-ma |
| 10/5/1981 | Mount Abram Twp. | NA | 004 | Boise Cascade Paper Grp | p-ma |
| 12/7/1973 | Mount Abram Twp. | NA | 004 | Boise Cascade Paper Grp | p-ma |
| 12/7/1973 | Mount Abram Twp. | NA | 004 | Boise Cascade Paper Grp | p-ma |
| 6/3/1976 | Mount Abram Twp. | NA | 004 | Boise Cascade Paper Grp | p-ma |
| 6/3/1976 | Mount Abram Twp. | NA | 004 | Boise Cascade Paper Grp | p-ma |
| 2/10/1978 | Mount Abram Twp. | NA | 004 | Boise Cascade Paper Grp | p-ma |
| 2/10/1978 | Mount Abram Twp. | 150 | 035 | Prentiss and Carlisle Mgt Co Inc | p-ma |
| 11/21/1975 | Mount Abram Twp. | see above | 035 | Prentiss and Carlisle Mgt Co Inc | p-ma |
| 6/24/1976 | Mount Abram Twp. | 800 | 252 | Scott Paper Co | p-ma |
| 11/10/1977 | Mount Abram Twp. | see above | 252 | Scott Paper Co | p-ma |
| 10/25/1982 | Mount Abram Twp. | see above | 252 | Scott Paper Co | p-ma |
| 12/23/1983 | Mount Abram Twp. | see above | 252 | Scott Paper Co | p-ma |
| 11/1/1985 | Mount Abram Twp. | see above | 252 | Scott Paper Co | p-ma |
| 3/7/1986 | Mount Abram Twp. | see above | 252 | Scott Paper Co | p-ma |
| 6/27/1987 | Mount Abram Twp. | 400 | 620 | Boise Cascade Paper Grp | p-ma |
| 12/31/1984 | Mount Abram Twp. | see above | 620 | Boise Cascade Paper Grp | p-ma |
| 12/31/1984 | Mount Abram Twp. | 80 | 620 | Boise Cascade Paper Grp | p-ma |
| 1/12/1987 | Mount Abram Twp. | see above | 620 | Boise Cascade Paper Grp | p-ma |
| 1/12/1987 | Mount Abram Twp. | see above | 620 | Boise Cascade Paper Grp | p-ma |
| 12/29/1987 | Mount Abram Twp. | 1152 | 743 | Boise Cascade Paper Grp | p-ma |
| 11/3/1994 | Mount Abram Twp. | see above | 743 | Boise Cascade Paper Grp | p-ma |
| 11/3/1994 | Mount Abram Twp. | see above | 743 | Boise Cascade Paper Grp | p-ma |
| 9/8/1995 | Mount Abram Twp. | see above | 743 | Boise Cascade Paper Grp | p-ma |
| 9/8/1995 | Mount Abram Twp. | see above | 743 | Mead Oxford Corp | p-ma |
| 2/18/2000 | Mount Abram Twp. | see above | 743 | Mead Oxford Corp | p-ma |
| 2/18/2000 | Parkertown Twp. | 900 | 023 | Brown Co | p-ma |
| 1/24/1975 | Parkertown Twp. | NA | 121 | Brown Co | p-ma |
| 2/9/1977 | Parkertown Twp. | NA | 121 | Brown Co | p-ma |
| 2/9/1977 | Parkertown Twp. | NA | 347 | Brown Co | p-ma |
| 1/5/1979 | Parkertown Twp. | NA | 372 | Brown Co | p-ma |
| 8/16/1979 | Parkertown Twp. | 30 | 467 | Brown Co | p-ma |
| 11/25/1980 | Parmachenee Twp. | see above | 169 | Brown Co | p-ma |
| 6/18/1976 | Parmachenee Twp. | NA | 391 | Brown Co | p-ma |
| 12/26/1979 | Parmachenee Twp. | NA | 397 | Brown Co | p-ma |
| 12/26/1979 | Rangeley Plt. | NA | 545 | Boise Cascade Paper Grp | p-ma |
| 3/22/1982 | Rangeley Plt. | 25 | 655 | Boise Cascade Paper Grp | p-ma |
| 1/14/1986 | Rangeley Plt. | 12 | 712 | Fiske | p-ma |
| 9/28/1990 | Rangeley Plt. | NA | 712 | Fiske | p-ma |
| 9/28/1990 | Rangeley Plt. | NA | 715 | Johnson | p-ma |
| 2/5/1991 | Rangeley Plt. | NA | 715 | Sheldon | p-ma |
| 2/5/1991 | Rangeley Plt. | 5.5 | 724 | S C Noyes and Co | p-ma |
| 1/16/1992 | Rangeley Plt. | see above | 724 | S C Noyes and Co | p-ma |
| 12/1/1993 | Rangeley Plt. | 45 | 726 | Mark Beauregard Inc | p-ma |
| 1/16/1992 | Rangeley Plt. | 106 | 741 | Mark Beauregard Inc | p-ma |
| 10/17/1994 | Rangeley Plt. | 51 | 765 | Drosdik | p-ma |
| 9/12/1997 | Rangeley Plt. | see above | 765 | Drosdik | p-ma |
| 12/28/1999 | Rangeley Plt. | 2.4 | 779 | S C Noyes and Co | p-ma |

**EXHIBIT C -- FORESTRY OPERATIONS PERMITS**

| | | | | | |
|---|---|---|---|---|---|
| 9/30/1999 | Rangeley Plt. | see above | 779 | S C Noyes and Co | p-ma |
| 9/30/1999 | Rangeley Plt. | see above | 779 | S C Noyes and Co | p-ma |
| 9/30/1999 | Rangeley Plt. | see above | 779 | S C Noyes and Co | p-ma |
| 9/30/1999 | Rangeley Plt. | see above | 779 | S C Noyes and Co | p-ma |
| 12/22/2000 | Rangeley Plt. | see above | 779 | S C Noyes and Co | p-ma |
| 12/22/2000 | Rangeley Plt. | see above | 779 | S C Noyes and Co | p-ma |
| 12/22/2000 | Rangeley Plt. | see above | 779 | S C Noyes and Co | p-ma |
| 12/22/2000 | Rangeley Plt. | 35 | 807 | Haley | p-ma |
| 10/30/2003 | Rangeley Plt. | see above | 807 | Haley | p-ma |
| 10/30/2003 | Rangeley Plt. | 11 | 816 | Haley | p-ma |
| 10/14/2004 | Rangeley Plt. | 160 | 831 | Bayroot LLC | p-ma |
| 8/15/2006 | Rangeley Plt. | NA | 831 | Wagner Forest Management Llc | p-ma |
| 8/15/2006 | Rangeley Plt. | 46 | 833 | Beauregard Inc | p-ma |
| 10/25/2006 | Rangeley Plt. | see above | 833 | Lantz | p-ma |
| 10/25/2006 | Rangeley Plt. | see above | 833 | Beauregard Inc | p-ma |
| 10/25/2006 | Rangeley Plt. | see above | 833 | Lantz | p-ma |
| 10/25/2006 | Rangeley Plt. | see above | 833 | Beauregard Inc | p-ma |
| 10/25/2006 | Rangeley Plt. | see above | 833 | Lantz | p-ma |
| 10/25/2006 | Rangeley Plt. | see above | 833 | Beauregard Inc | p-ma |
| 10/25/2006 | Rangeley Plt. | see above | 833 | Lantz | p-ma |
| 10/25/2006 | Redington Twp. | 1000 | 021 | Hudson Pulp and Paper Co | p-ma |
| 9/12/1974 | Redington Twp. | 35 | 461 | St Croix Pulpwood Co | p-ma |
| 9/9/1980 | Redington Twp. | 115 | 466 | St Croix Pulpwood Co | p-ma |
| 11/16/1980 | Redington Twp. | 1300 | 692 | Georgia-Pacific Corp | p-ma |
| 9/21/1990 | Redington Twp. | see above | 692 | Georgia-Pacific Corp | p-ma |
| 3/18/1992 | Redington Twp. | 700 | 778 | Dallas Co | p-ma |
| 11/16/1999 | Redington Twp. | see above | 778 | Dallas Co | p-ma |
| 8/31/2000 | Redington Twp. | 1400 | 778 | Creek Maine Marketing Inc | p-ma |
| 9/7/2001 | Redington Twp. | see above | 778 | Dallas Co | p-ma |
| 9/7/2001 | Redington Twp. | see above | 778 | Dallas Land Co | p-ma |
| 12/11/2001 | Redington Twp. | see above | 778 | Plum Creek Maine Marketing Inc | p-ma |
| 12/11/2001 | Salem Twp. | 200 | 29 | The Fred O Smith Mfg Co | p-ma |
| 2/7/1975 | Salem Twp. | 10.3 | 773 | Chenard | p-ma |
| 12/11/1998 | Salem Twp. | 75 | 808 | d/b/a Maple Hill Forest-Tree | p-ma |
| 12/4/2003 | Salem Twp. | see above | 808 | Tracy | p-ma |
| 12/4/2003 | Salem Twp. | see above | 808 | d/b/a Maple Hill Forest-Tree | p-ma |
| 12/4/2003 | Salem Twp. | see above | 808 | Tracy | p-ma |
| 12/4/2003 | Salem Twp. | see above | 808 | d/b/a Maple Hill Forest-Tree | p-ma |
| 12/4/2003 | Salem Twp. | see above | 808 | Tracy | p-ma |
| 12/4/2003 | Salem Twp. | see above | 808 | d/b/a Maple Hill Forest-Tree | p-ma |
| 12/4/2003 | Salem Twp. | see above | 808 | Tracy | p-ma |
| 12/4/2003 | Sandy Bay Twp. | NA | 001 | James W Sewall Co | p-ma |
| 8/3/1973 | Sandy River Plt. | NA | 458 | Moody | p-ma |
| 8/6/1980 | Sandy River Plt. | NA | 825 | Cousineau Inc | p-ma |
| 12/12/2005 | Sandy River Plt. | NA | 825 | Cousineau Inc | p-ma |
| 4/20/2007 | Sandy River Plt. | NA | 825 | Main-Land Development Consulta | p-ma |
| 4/20/2007 | Sandy River Plt. | 120 | 840 | Mark Beauregard Inc | p-ma |
| 12/29/2006 | Sandy River Plt. | see above | 840 | Saddleback Land & Timber Corpo | p-ma |
| 12/29/2006 | Seven Ponds Twp. | 200 | 006 | Brown Co | p-ma |
| 12/21/1973 | Seven Ponds Twp. | NA | 020 | Brown Co | p-ma |
| 9/12/1974 | Seven Ponds Twp. | NA | 020 | Brown Co | p-ma |
| 12/5/1974 | Seven Ponds Twp. | NA | 341 | Brown Co | p-ma |
| 11/6/1978 | Seven Ponds Twp. | NA | 382 | Brown Co | p-ma |
| 9/26/1979 | Seven Ponds Twp. | NA | 383 | Brown Co | p-ma |
| 9/26/1979 | Seven Ponds Twp. | 226 | 811 | International Paper Timberlands C | p-ma |
| 10/14/2004 | Seven Ponds Twp. | 332 | 836 | Sustainable Forest Technologies | p-ma |
| 12/4/2006 | Skinner Twp. | 214 | 486 | Scott Paper Co | p-ma |

**EXHIBIT C -- FORESTRY OPERATIONS PERMITS**

| | | | | | |
|---|---|---|---|---|---|
| 1/21/1981 | Stetsontown Twp. | NA | 186 | Brown Co | p-ma |
| 7/13/1976 | Stetsontown Twp. | NA | 187 | Brown Co | p-ma |
| 7/13/1976 | Stetsontown Twp. | 500 | 220 | Brown Co | p-ma |
| 12/8/1976 | Stetsontown Twp. | 30 | 356 | Brown Co | p-ma |
| 7/23/1979 | Stetsontown Twp. | NA | 378 | Brown Co | p-ma |
| 9/7/1979 | Stetsontown Twp. | 5 | 493 | Marquis | p-ma |
| 2/12/1981 | Stetsontown Twp. | 250 | 583 | Boise Cascade Paper Grp | p-ma |
| 10/12/1983 | Stetsontown Twp. | 277 | 776 | Mead Oxford Corp | p-ma |
| 2/11/1999 | T 2 R13 WELS | NA | 398 | Great Northern Paper Co | p-ma |
| 12/26/1979 | T 2 R13 WELS | NA | 437 | Great Northern Paper Co | p-ma |
| 9/23/1980 | T 2 R13 WELS | NA | 505 | Great Northern Paper Co | p-ma |
| 9/9/1981 | T 3 R11 WELS | NA | 502 | Great Northern Paper Co | p-ma |
| 6/11/1981 | T 4 R11 WELS | NA | 428 | Great Northern Paper Co | p-ma |
| 7/1/1980 | T 6 North of Weld | NA | 219 | Brown Co | p-ma |
| 12/7/1976 | T 6 North of Weld | 238 | 809 | Hancock Land Co | p-ma |
| 1/14/2004 | T 6 North of Weld | NA | 809 | Hancock Land Co | p-ma |
| 1/14/2004 | T 6 North of Weld | see above | 809 | Hancock Land Co | p-ma |
| 12/20/2004 | Tim Pond Twp. | 45 | 623 | Boise Cascade Paper Grp | p-ma |
| 12/31/1984 | Tim Pond Twp. | NA | 755 | Boise Cascade Paper Grp | p-ma |
| 5/8/1996 | Tim Pond Twp. | 80 | 758 | Boise Cascade Paper Grp | p-ma |
| 7/13/1996 | Tim Pond Twp. | see above | 758 | Boise Cascade Paper Grp | p-ma |
| 8/21/1996 | Tim Pond Twp. | 605 | 766 | Mead Oxford Corp | p-ma |
| 10/10/1997 | Township D | NA | 163 | Brown Co | p-ma |
| 6/16/1976 | Township D | NA | 163 | Brown Co | p-ma |
| 6/16/1976 | Township D | NA | 323 | Brown Co | p-ma |
| 7/20/1978 | Township D | 500 | 328 | Brown Co | p-ma |
| 9/26/1978 | Township D | 151 | 622 | Boise Cascade Paper Grp | p-ma |
| 12/14/1984 | Township D | see above | 622 | Boise Cascade Paper Grp | p-ma |
| 2/7/1985 | Township D | 1200 | 653 | Boise Cascade Paper Grp | p-ma |
| 10/17/1985 | Township D | see above | 653 | Boise Cascade Paper Grp | p-ma |
| 1/15/1986 | Township D | see above | 653 | Boise Cascade Paper Grp | p-ma |
| 9/25/1990 | Township D | 620 | 666 | Boise Cascade Paper Grp | p-ma |
| 8/29/1986 | Township E | 80 | 675 | Public Lands | p-ma |
| 1/15/1987 | Township E | 103 | 700 | Public Lands | p-ma |
| 1/12/1990 | Township E | 15 | 714 | Public Lands | p-ma |
| 11/21/1990 | Township E | 15 | 732 | Public Lands | p-ma |
| 1/15/1993 | Township E | see above | 732 | Public Lands | p-ma |
| 11/15/1993 | Township E | 32 | 733 | Public Lands | p-ma |
| 1/15/1993 | Township E | 50 | 744 | Public Lands | p-ma |
| 12/12/1994 | Upper Enchanted Twp. | NA | 813 | Bayroot LLC | p-ma |
| 7/20/2004 | Upper Enchanted Twp. | NA | 813 | Leighton | p-ma |
| 7/20/2004 | Wyman Twp. | NA | 000 | J M Huber Corp | p-ma |
| 10/2/1974 | Wyman Twp. | NA | 000 | J M Huber Corp | p-ma |
| 10/2/1974 | Wyman Twp. | NA | 000 | J M Huber Corp | p-ma |
| 10/2/1974 | Wyman Twp. | NA | 000 | J M Huber Corp | p-ma |
| 10/2/1974 | | | | | |
| | | | | | |
| | **Total Acreage: 21,373** | | | | |
| | | | | | |
| | Acreage in townships adjacent to Kibby: 860 | | | | |
| | | | | | |
| | Acreage in nearby townships: 1940 | | | | |

## Exhibit D: Comparison of Kibby Wind Farm to largest hydropower plants in Maine